Cognitive Amplification Environment (CAE)

Dylan's View

Feasibility Experiment

Evaluations

CAE

Cognition On Task

Set Management

Context Tracking
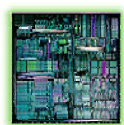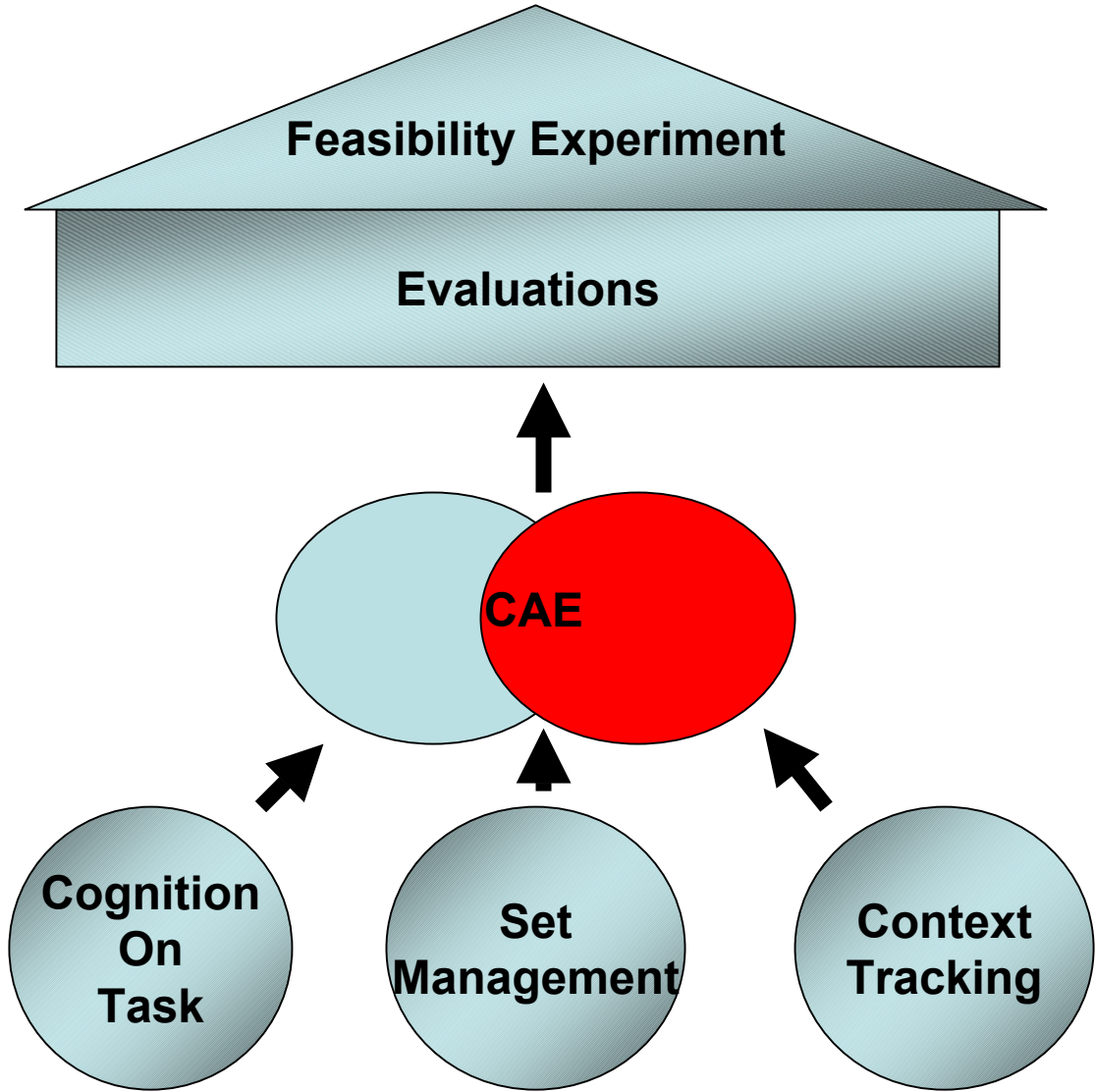
Questions

- What is working definition of CAE?

- What should be investigated first?

- What is potentially high pay-off, but hard?
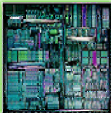
- How to integrate SOA (state of the art)?
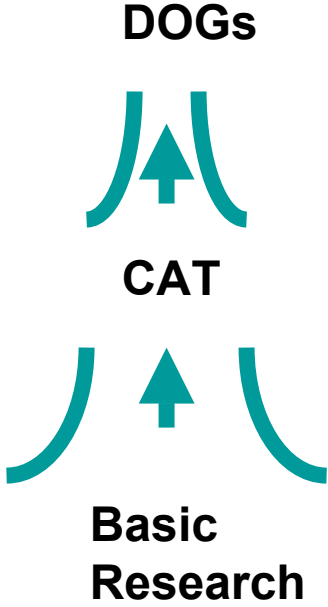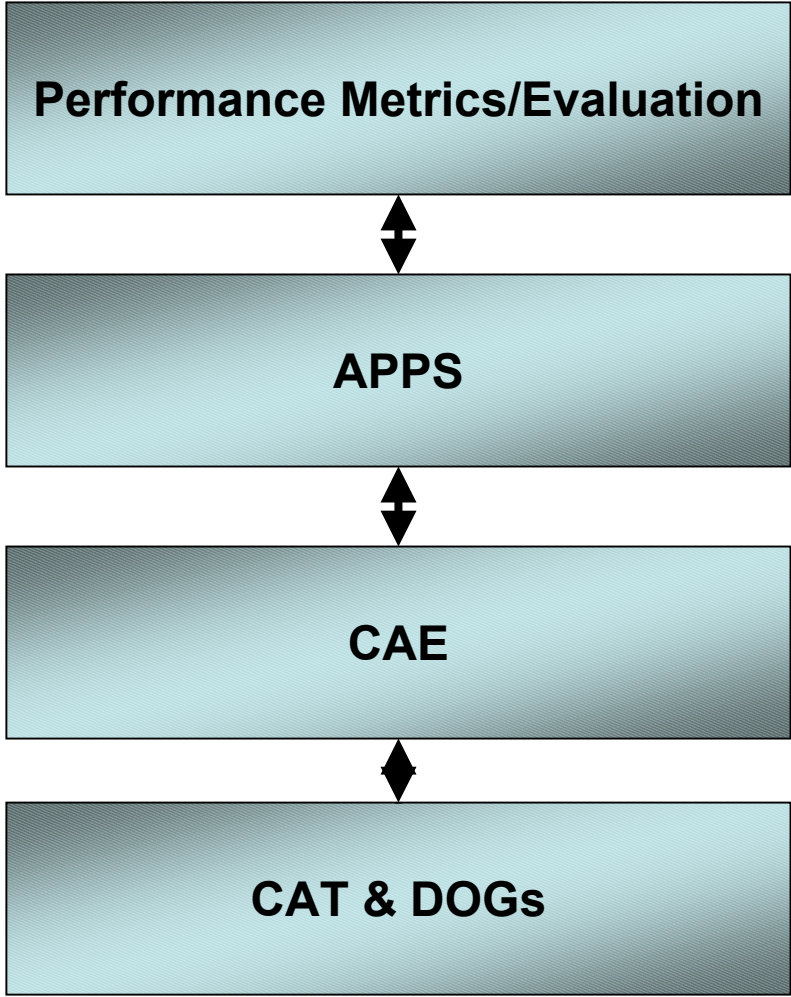
CAE definition

- CAE is the stimulation (rest of the world) external to subject and domain oriented gadgets (DOGs).
  - "Subject" is human using DOG
- CAE also defines the DOG
 - How Cognitive Amplification Technologies (CATs) will be used

Great Graphics

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┌─────────────────────────────────────┐
│  Performance Metrics/Evaluation      │
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┌─────────────────────────────────────┐
│              APPS                    │
└─────────────────────────────────────┘
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┌─────────────────────────────────────┐
│              CAE                     │
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┌─────────────────────────────────────┐
│          CAT & DOGs                  │
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DOGs

CAT

Basic Research

SRD

- Program Description
- Program Concept of Operations (CONOPS)
- System Description
  - System Components
    - CATs & DOGs
      - Cognition on Task, Set Management, Context Tracking, Other…
    - Joint Synthetic Battlespace (JSB)
    - Integrated Data Environment (IDE)
  - Operational/Assessment Requirements
 - Experiment Design/Execution
- Appendices
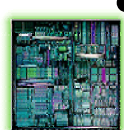
Work ideas…

- KA/E to define model that "subject" is going to "use". Keep generic to support multiple seedlings.
  - Provide "education/guidance" to other 3 groups to move toward a general "architecture".
  - CAE (through KA/E) defines the model for the general decision making process.
    - Literature search
    - Project possible changes…

Work ideas

- Define the DOG
- Provide structure/framework to seedlings toward FE.
- Eliminate individual development of support infrastructure for "seedling" efforts (environment, entities, etc…)
- Experiment Support
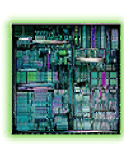
CAT v0.9

- MMWS
- Knowledge wall/desk
- InfoCockpit
- Sonification
- Augmented Reality
- Battleboard
- Visage
- …

- Video
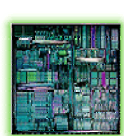- Audio
- Touch/Haptic
- Data Manipulation
- Agents
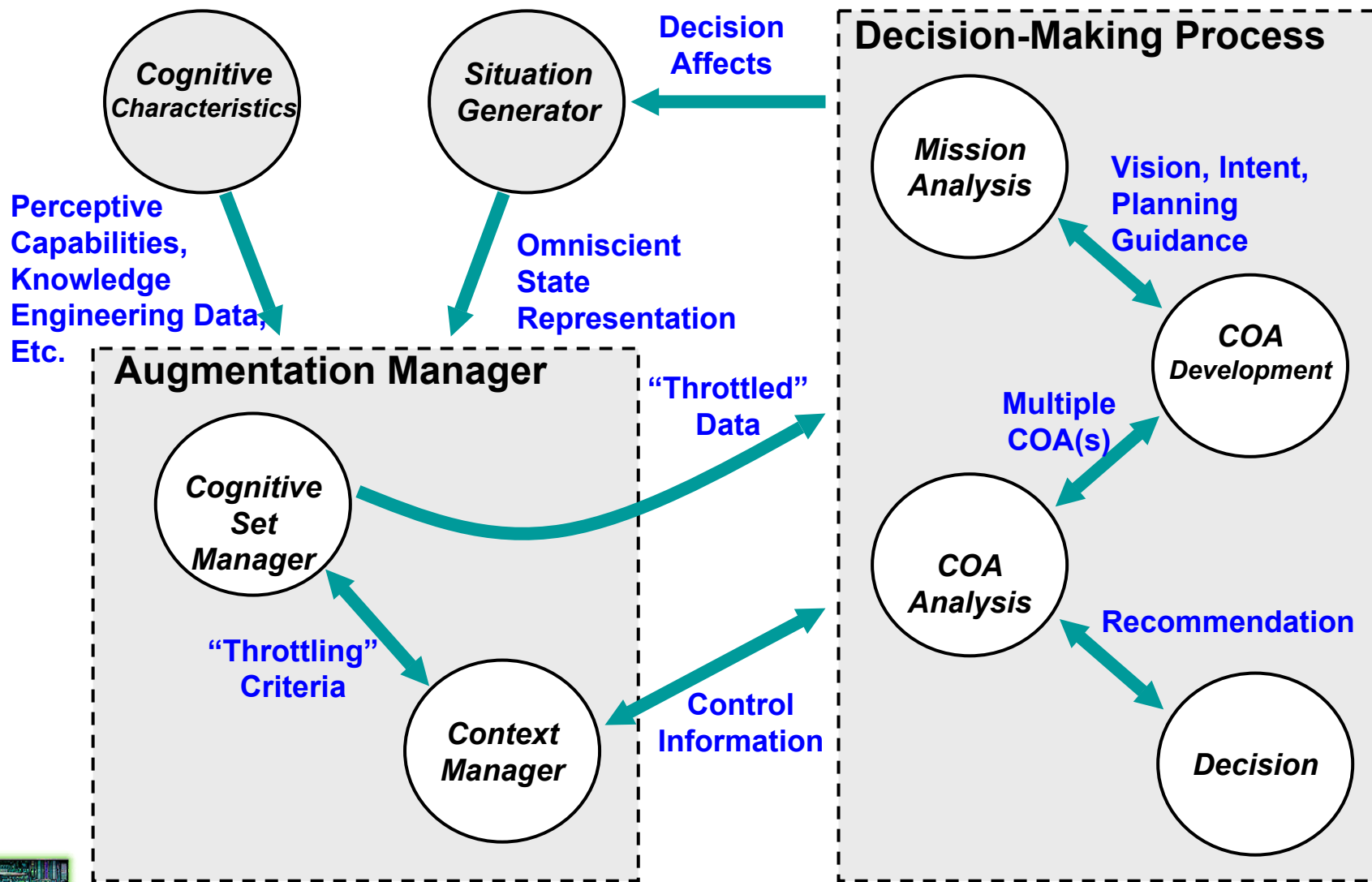- Sensors

Friday Slides

CONOPS

CONOPS

- Seedling efforts and basic research conducted independent of military application but dependent on AugCog objectives
- CAE to provide familiarization, education, guidance to develop transition plan to achieve military relevancy
- With military relevancy basic research becomes a CAT
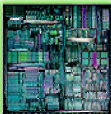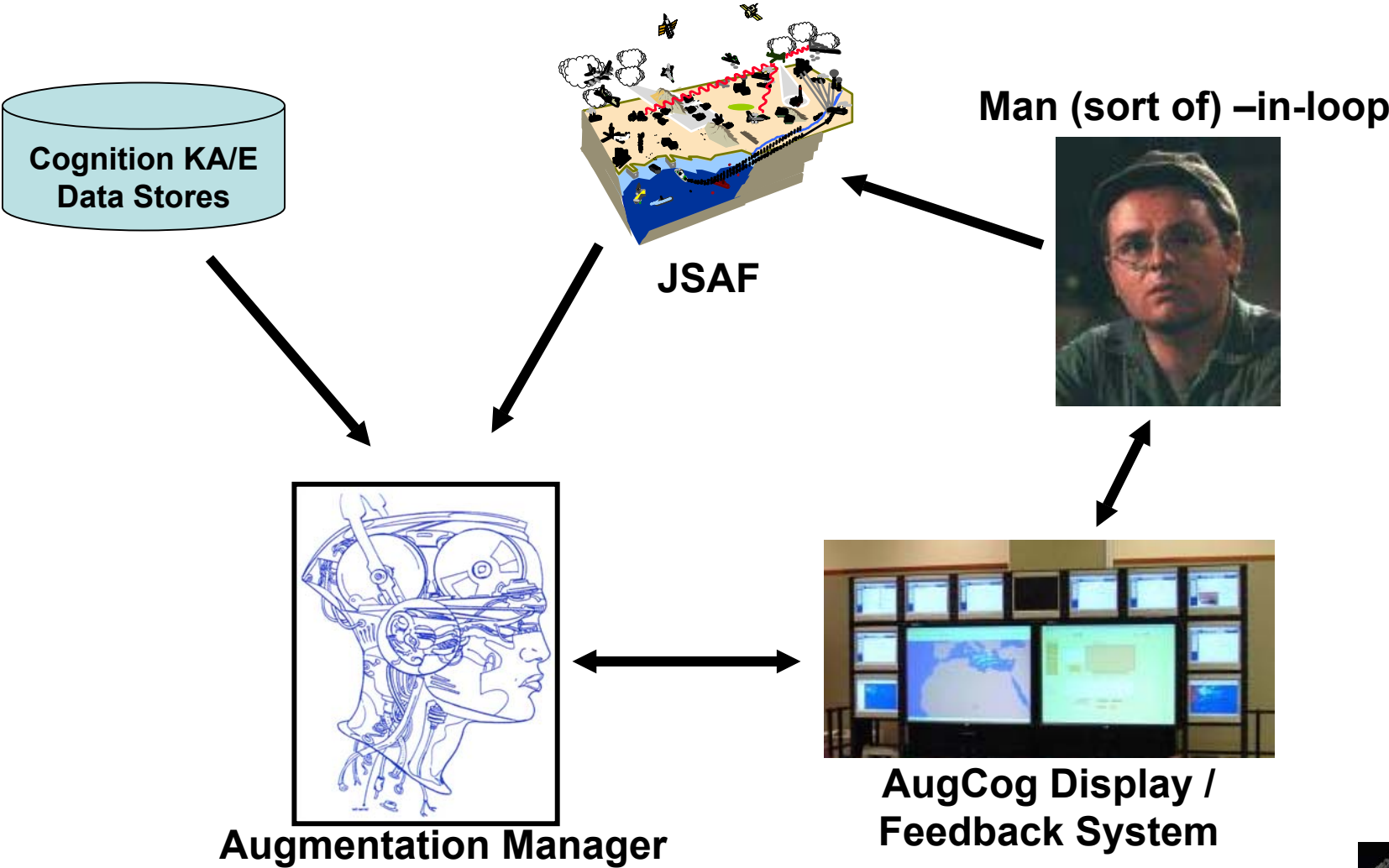- CAT(s) applied to a domain "system" becomes a DOG

AugCog Quick Start - Notional Architecture

Cognitive Characteristics

Situation Generator

Decision Affects

Decision-Making Process

Mission Analysis

Vision, Intent, Planning Guidance

Perceptive Capabilities, Knowledge Engineering Data, Etc.

Omniscient State Representation

Augmentation Manager

Cognitive Set Manager

"Throttled" Data

COA Development

Multiple COA(s)

"Throttling" Criteria

Context Manager

Control Information

COA Analysis

Recommendation

Decision

AugCog Quick Start - Component Architecture

Cognition KA/E Data Stores

JSAF

Man (sort of) –in-loop

Augmentation Manager

AugCog Display / Feedback System

Near Term POA(&M)

- KA/E Activities
  - Develop/Review Decision Making Process
  - ID "Forward Thinking" Decision Makers
- System Requirements Document (SRD)
  - ID System Components (architecture)
  - Draft SRD Development (BMH)
  - Review (CAE Team)

Where to go for help?

MAUI

RENO